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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 13/219,239 | 08/26/2011 | Jack Cahn | 50683-00002 | 9442 |

25231 7590 04/11/2017

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|---|
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| ART UNIT | PAPER NUMBER |
|---|---|
| 1733 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 04/11/2017 | ELECTRONIC |

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* JACK CAHN[1]

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Appeal 2016-000490
Application 13/219,239
Technology Center 1700

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Before JAMES C. HOUSEL, CHRISTOPHER C. KENNEDY, and JEFFREY R. SNAY, *Administrative Patent Judges*.

KENNEDY, *Administrative Patent Judge*.

## DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's decision to reject claims 1, 3–6, 8, 9, 11–16, 18, 19, 21, and 22. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

## BACKGROUND

The subject matter on appeal relates to methods for validation of cryogenically treated articles. *E.g.*, Spec. ¶ 2; Claim 1. Claim 1 is reproduced below from page 12 (Claims Appendix) of the Appeal Brief:

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[1] According to the Appellant, the real party in interest is AMS Corporation. Br. 1.

1. A method for validation of cryogenically treated articles, the method comprising:

identifying a metallurgic characteristic of a treatment article manufactured from a metal-matrix material, the metallurgic characteristic being predetermined to undergo an associated enhancement during cryogenic treatment according to a predetermined treatment protocol, the enhancement being measurable only by destructive testing;

producing a witness article manufactured from the metal-matrix material and having the metallurgic characteristic of the treatment article;

cryogenically treating the treatment article and the witness article according to the predetermined treatment protocol;

testing the witness article using destructive testing according to a predetermined test protocol to generate witness results that indicate whether the associated enhancement in the metallurgic characteristic is present in the witness article subsequent to the cryogenically treating; and

validating that the treatment article underwent the cryogenic treatment according to the predetermined treatment protocol when the witness results indicate that the associated enhancement in the at least one metallurgic characteristic is present in the witness article.

REJECTIONS ON APPEAL

1. Claims 1, 3–6, 8, 9, 11–16, 18, 19, 21, and 22 stand rejected under 35 U.S.C. § 112, ¶ 1, for failure to comply with the written description requirement.

2. Claims 1, 3–6, 8, 9, 11–16, 18, 19, 21, and 22 stand rejected under 35 U.S.C. § 112, ¶ 2, for indefiniteness.

3. Claims 11 and 19 stand rejected under 35 U.S.C. § 112, ¶ 4, for failure to further limit the subject matter of the claims from which they depend.

4. Claims 1, 3–6, 8, 9, 11–16, 18, 19, 21, and 22 stand rejected under 35 U.S.C. § 103(a) as unpatentable over applicant admitted prior art ("AAPA") in view of Hamatani (US 3,878,726, issued Apr. 22, 1975).

## ANALYSIS

### *I. Rejection 1*

The Examiner determines that claims 1, 3–6, 8, 9, 11–16, 18, 19, 21, and 22 lack written description support because "[t]he specification and claims all recite 'validation' of articles without specifying what specific procedure(s) exactly constitutes the 'validation' recited." Non-Final Action dated Sept. 5, 2014 ("Non-Final Act."), at 3.

The Examiner determines that claims 1, 3–6, 8, 9, 11–16, 18, 19, and 21 lack written description support for the additional reason that those claims "recite enhancing a characteristic which can only be measured by destructive testing, however the specification as originally filed does not disclose this feature or list any characteristics which can only be measured by destructive testing." *Id.* at 3–4 (emphasis in original).

We are not persuaded by the Examiner's rationale. The Examiner's stated concerns appear to be more relevant to definiteness than to written description. *See id.* "[T]he test for [compliance with the written description requirement] is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *See Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010). Here, the Specification includes literal support for the limitations identified by the Examiner. *See* Spec. ¶¶ 2, 24–27, 47, 56–57 (discussing validation);

Spec. ¶ 25 ("Still another reason that independent and reliable validation may be difficult is that many effects of the cryogenic treatment can only be reliably tested using destructive testing."). Further, the Specification discloses a number of metallurgical characteristics including hardness, corrosion resistance, and tensile strength. *Id.* ¶ 95. The Examiner has not persuasively explained why the written description, especially considering these disclosures, does not demonstrate possession of the claimed invention. Thus, we agree with the Appellant that the Examiner's § 112, ¶ 1 rejection lacks merit. *See* Br. 5–6. We reverse the rejection.

*II. Rejection 2*

The Examiner determines that claims 1, 3–6, 8, 9, 11–16, 18, 19, 21, and 22 are indefinite because, "[a]s stated [in the § 112, ¶ 1 rejection], the[] terms 'validation' and 'validating' are not defined in the claims or specification, rendering the scope of the claims unascertainable." Non-Final Act. 4.

The legal standard for definiteness in prosecution is whether a claim reasonably apprises those of skill in the art of its scope. *In re Warmerdam*, 33 F.3d 1354, 1361 (Fed. Cir. 1994). "[D]efiniteness of the language employed must be analyzed—not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art." *In re Moore*, 439 F.2d 1232, 1235 (CCPA 1971). A claim is not indefinite simply because it is broad. *See In re Miller*, 441 F.2d 689, 693 (CCPA 1971) ("[B]readth is not to be equated with indefiniteness . . . .").

The Specification explains that a problem in the art of producing cryogenically treated articles is that "the treatment process is questionable in

effect and unreliable." Spec. ¶ 8. Prospective consumers of cryogenically treated items lack assurances that the cryogenically treated item actually possesses any benefit over a comparable non-cryogenically treated item. *See id.* The Specification goes on to describe a method by which the benefit (i.e., "enhancement") of the treatment process to one article (i.e., the "treatment article") can be confirmed and/or documented by "testing" a comparable sample article (i.e., the "witness article") after both articles have been subjected to the same cryogenic process. *E.g.*, *id.* ¶¶ 10, 24–27, 56 ("In some cases, the validation includes documentation, which may or may not include specific portions of the witness results . . . and/or other useful information . . . ."). The Specification explains that results from the testing of the witness article "can then be used as a substitute . . . to direct testing of the validation articles themselves, for example, to validate that the validation article has undergone a particular cryogenic treatment protocol and/or that the treatment of the validation article has resulted in particular enhancements in wear characteristics, resistance to corrosion, increases in electrochemical bonding of surface treatments, increases in theoretical useable lifespan, etc." *Id.* at 27.

The Examiner states that the term "validation" "could have multiple meanings, such as meaning that the article is suitable of reuse, that the article is exactly identical to a sample article or that the article is within an acceptable range of values compared to a sample article. Further, no specific steps are disclosed in either the specification or claims that constitute the specific type of validation claimed." Non-Final Act. 3.

The Appellant argues that "the term means assuming or concluding that the treatment article underwent the cryogenic treatment according to the

predetermined treatment protocol (e.g., as opposed to some other treatment protocol)." Br. 5 (emphasis omitted). The Appellant further argues:

> While the "validating" step of independent claims 1 and 16 is not precluded from further encompassing an approval of a particular level of acceptability of the cryogenic treatment of the treatment article or an assumption that the cryogenic treatment resulted in particular enhancements in metallurgical characteristics of the treatment article, *it necessarily at least requires* validating/assuming/concluding that the treatment article *underwent* the cryogenic treatment *according to the predetermined treatment protocol* when the enhancement is present in the witness article.

*Id.* (emphases in original).

On this record, we are not persuaded that a person of ordinary skill in the art would have considered the term "validation" or "validating" to be indefinite. On the contrary, the terms simply appear to be broad and to encompass any method of "validating that the treatment article underwent the cryogenic treatment according to the predetermined treatment protocol," as recited by claim 1. That validation could be in the form, for example, of documentation, *e.g.*, Spec. ¶ 56, or any other means for confirming and/or providing a basis to conclude that the treatment article underwent the predetermined treatment protocol. The plain meaning of the term "validate" is "to make valid; substantiate; confirm." *See* http://www.dictionary.com/browse/validate (last accessed April 7, 2017). The Examiner provides no persuasive basis to conclude that a person of ordinary skill in the art would not have understood the scope of the disputed terms. We reverse the § 112, ¶ 2 rejection.

*III. Rejection 3*

The Examiner determines that claim 11, which depends from claim 1, recites "characteristics . . . already recited as being identified, or measured in instant claim 1." Non-Final Act. 5. The Examiner determines that claim 19, which depends from claim 16, "contains only mental steps with no corresponding physical method steps and is therefore not further limiting." *Id.*

We are not persuaded by the Examiner's rationale. With respect to claim 11, the recited claim element limits claim 1 to a particular method of "identifying a metallurgic characteristic of a treatment article," i.e., "measuring the witness article prior to the cryogenically treating to obtain a pretreatment value for the metallurgic characteristic of the treatment article." As the Appellant explains, "there are various possible implementations of independent claim 1 that do not require any measurement of a 'pre-treatment value.'" Br. 6. We agree, and we note that the Examiner does not meaningfully address that contention, or otherwise show it to be erroneous, in the Answer. *See* Ans. 3. We reverse the § 112, ¶ 4 rejection of claim 11.[2]

Concerning claim 19, the recited claim elements further limit claim 16. Claim 16 permits any predetermined test protocol for the destructive

[2] In the event of further examination of the application on appeal, the Appellant and the Examiner may wish to clarify whether claim 11 requires two witness articles. Claim 1 states that the post-treatment "enhancement" is "measurable only by destructive testing." Because the pre-treatment measurement appears to be of the same characteristic, it would appear that the pre-treatment measurement may lead to the destruction of the witness article being tested, thus leading to the need for a second witness article to undergo the predetermined treatment protocol along with the treatment article.

testing to be used. The plain language of claim 16 does not require the test protocol be defined by the treatment protocol. Claim 19 further limits claim 16 at least by requiring that the treatment protocol define the test protocol. We reverse the § 112, ¶ 4 rejection of claim 19.

*IV. Rejection 4*

The Appellant presents arguments for claims 1 and 22. We limit our discussion to those claims. Claims 3–6, 8, 9, 11–16, 18, 19, and 21 will stand or fall with claim 1.

A. Claim 1

The Examiner finds that the AAPA discloses that cryogenic treatment of metallic articles was known to alter and/or improve certain properties of metal articles. Non-Final Act. 7 (citing Spec. ¶¶ 3–8). The Examiner determines that the "identifying" step of claim 1 "is fairly met by any observation of any property of the articles, including simple visual observation of the article." *Id.* The Examiner acknowledges that the "prior art fails to teach" the use and testing of a witness article followed by validation of the treatment article. *Id.* at 7–8.

The Examiner finds, however, that "sample testing of workpieces in order to ensure the suitability of any process, including cryogenic processing, is shown by Hamatani to be very old and well known in the manufacturing industry in order to ensure proper process control." *Id.* at 8. The Examiner concludes that "motivation to test a sample workpiece as shown by Hamatani . . . and then test the sample workpiece to ensure proper processing . . . would have been a modification obvious to one of ordinary skill in the art at the time the invention was made." *Id.*

The Appellant argues that "the Examiner clearly errs by not specifically addressing or even mentioning the step of 'validating that the treatment article underwent the cryogenic treatment according to the predetermined treatment protocol . . . ." Br. 7 (emphases omitted). The Appellant further argues that "Hamatani does not disclose or even suggest" the "validating" step of claim 1. *Id.* at 9.

For reasons consistent with those expressed by the Examiner, *see* Ans. 3–4, we are not persuaded by those arguments. Hamatani discloses the well-known concept that, to verify the properties or qualities of a group of objects, "a sample which represents respective groups of products it belongs to" can be "inspect[ed] . . . to judge its quality." Hamatani at Abstract. It appears that the Appellant has applied that known concept to known cryogenic processes.

In opposing the § 112 rejections, discussed above, the Appellant attempts to define the term "validating" as "assuming or concluding that the treatment article underwent the cryogenic treatment according to the predetermined treatment protocol." *E.g.*, Br. 5. Although Hamatani may not use the word "validate" or "validating," Hamatani's disclosed process of sampling products pulled from the assembly line of a manufacturing process to verify that they are of sufficient quality necessarily is encompassed by or otherwise renders obvious the concept of validation, as defined by the Appellant, because a person of ordinary skill in the art would have understood that the purpose of sampling is to "assume" or "conclude" that the other products on the assembly line, subject to the same manufacturing process as the sample, possess the same properties as the sample. The Appellant's arguments do not persuasively rebut the Examiner's

determination that, when combined with known cryogenic manufacturing processes, Hamatani would have motivated a person of ordinary skill in the art, through the use of only ordinary creativity, to validate that articles subject to the same process as the sample article underwent the same process and would have been expected to be of similar quality and character. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–19 (2007) ("[T]he [obviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.").

As the Supreme Court has explained, "in many cases a person of ordinary skill will be able to fit the teachings of multiple [prior art references] together like pieces of a puzzle." *Id.* at 420. "When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability." *Id.* at 417. On this record, the Appellant's arguments concerning the "validating" step of claim 1 do not persuade us that a person of ordinary skill in the art would not have been motivated to, and capable of, adapting the known sampling/validation technique of Hamatani to other known processes, such as cryogenic processes, so as to render the method of claim 1 obvious. We affirm the rejection of claim 1.

B. Claim 22

Claim 22 recites:

22. A method for validation of cryogenically treated articles, the method comprising:

performing destructive testing on a witness article according to a predetermined test protocol to generate witness results subsequent to cryogenic treatment concurrently of the witness article and a treatment article according to a treatment protocol, the witness results comprising a measure of a first metallurgic characteristic of the witness article that is predetermined to undergo, during cryogenic treatment according to the treatment protocol, a first associated enhancement that can be measured only by destructive testing, the witness article produced from a same metal-matrix material as that of the treatment article such that both comprise the metallurgic characteristic, such that the witness results indicate whether the first associated enhancement in the metallurgic characteristic is present in the witness article subsequent to the cryogenic treatment;

performing non-destructive testing on the treatment article according to the predetermined test protocol subsequent to the cryogenic treatment, the witness results further comprising a measure of a second metallurgic characteristic of the treatment article that is predetermined to undergo a second associated enhancement during the cryogenic treatment, such that the witness results indicate whether the second associated enhancement in the metallurgic characteristic is present in the treatment article subsequent to the cryogenic treatment; and

validating the cryogenic treatment of the treatment article only when the witness results indicate that the first associated enhancement is present in the witness article and the second associated enhancement is present in the treatment article.

Claim 22, unlike claim 1, requires testing of both the witness article (i.e., sample) and the treatment article (i.e., actual product).

In the Non-Final Action, the Examiner groups claim 22 with claim 1 and does not appear to provide any analysis concerning the differences between claims 1 and 22. *See* Non-Final Act. 7–8.

In the Appeal Brief, the Appellant notes that apparent deficiency. *See* Br. 9–10. The Appellant also points out that Hamatani does not teach or suggest "performing destructive testing on a witness article and non-destructive testing on a treatment article." *Id.* at 10.

In the Answer, the Examiner fails to provide any meaningful analysis relevant to the differences between claims 1 and 22. It appears that the final paragraph of page 4 of the Answer, directed to destructive testing, may have been intended to address the Appellant's arguments concerning claim 22. *See* Ans. 4. However, that paragraph does not meaningfully respond to the Appellant's arguments.

The Examiner bears the burden of establishing a prima facie case of obviousness based on the prior art. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). On this record, given the Examiner's failure to meaningfully address the limitations of claim 22, or to explain how or why those limitations are of no patentable significance relative to the limitations of claim 1, we are constrained to reverse the Examiner's rejection of claim 22.

## CONCLUSION

We REVERSE the Examiner's rejection of claims 1, 3–6, 8, 9, 11–16, 18, 19, 21, and 22 under 35 U.S.C. § 112, ¶ 1.

We REVERSE the Examiner's rejection of claims 1, 3–6, 8, 9, 11–16, 18, 19, 21, and 22 under 35 U.S.C. § 112, ¶ 2.

We REVERSE the Examiner's rejection of claims 11 and 19 under 35 U.S.C. § 112, ¶ 4.

We AFFIRM the Examiner's rejection of claims 1, 3–6, 8, 9, 11–16, 18, 19, and 21 under 35 U.S.C. § 103(a).

We REVERSE the Examiner's rejection of claim 22 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART